

Remarks

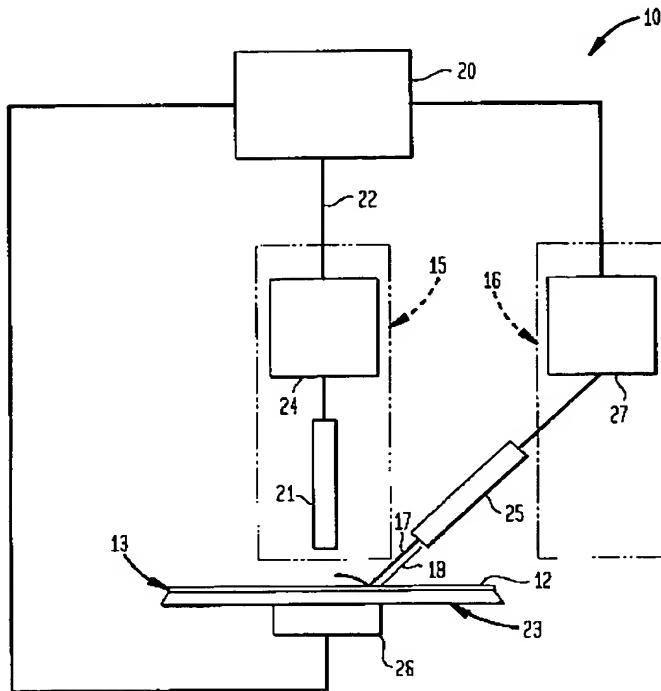
Claims 1-19 and 21-22 are pending in the application. Although Applicants respectfully submit that the previous proposed amendment to claim 1 did not include contradictory subject matter, Applicants have amended claim 1 for clarification purposes. Please note that the state of the claims and the mark-ups to claim 1 assume that the Amendment dated January 20, 2005 is entered before the present amendment. Applicants respectfully submitted that the amendment does not introduce new matter.

Rejections under 35 U.S.C. § 103

Claims 1-19, 21 and 22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hiatt et al. (U.S. Patent No. 5,963,315)("Hiatt") in view of Yin et al. (U.S. Patent No. 5,865,901)("Yin") and Boszormenyi et al. (U.S. Patent No. 6,394,105)("Boszormenyi"). These rejections are respectfully traversed. As will be fully explained, the cited prior art references individually or in combination do not disclose or suggest each and every feature of independent claims 1, 8, 15, 21 and 22 as required to raise a prima facie case of section 103 obviousness.

To raise a prima facie case of section 103 obviousness against claims 1, 8, 15, 21 and 22, as amended, the Hiatt reference, Yin reference and/or the Boszormenyi references must disclose or suggest the defining and the cleaning of sites which include portions of the backside of the wafer that contact a chuck during a semiconductor process. With respect to the Hiatt reference, the Hiatt reference only discusses detecting of particles on a backside of the wafer and generic cleaning of the entire wafer after such contamination is detected. Therefore, Hiatt does not disclose or suggest the defining and cleaning of specific sites that are portions of the backside of the wafer that contacts a chuck during wafer processing. The Office admits that Hiatt does not teach preferential localized cleaning of the specific areas.

With respect to the Yin reference, Yin renders a particle map of the substrate surface and analyzes the map data to determine particles on a top surface of the wafer. The Office is respectfully directed to Figure 1 of Yin shown below:



As can be seen in Figure 1 of Yin above, the surface cleaned is a frontside surface of the wafer 13 and the backside surface of the wafer 12 lays on the substrate holder. As shown in Figure 1 of Yin, the backside of the wafer 13 is not cleaned by the impinging stream. In contrast, the claimed inventions include defining a backside of the wafer which contacts a chuck during a semiconductor process and the cleaning of that portion of the wafer. Applicants respectfully submit that Yin makes no mention of defining or cleaning of backside portions of the wafer that contacts the chuck during a semiconductor manufacturing process. Applicants respectfully submit that because Figure 1 of Yin shows the backside surface of the substrate 13 as resting on the substrate holder 23, the apparatus as shown in Yin's Figure 1 does not appear to be capable of cleaning the backside of the wafer since the impinging stream appears to only have access to the frontside surface. Therefore, as can be seen, the Yin reference does not

disclose, teach, or suggest the defining and cleaning of a portion of the backside of the wafer that contacts a chuck.

Moreover, Applicants respectfully submit that one skilled in the art would not be motivated to combine the teachings of Yin and Hiatt to generate the claimed invention because the apparatus as defined by Yin does not appear to have the capability to clean specific sites of the backside of the wafer that contacts the substrate holder.

With respect to the Boszormenyi reference, Boszormenyi only teaches a generic use of laser to clean wafers. The claimed inventions as discussed above, include the features of defining portions of a wafer which contact a chuck and cleaning those portions of the wafer. In contrast, Boszormenyi does not even mention or suggest usage of a chuck in wafer processing let alone defining and cleaning a portion of the wafer that contacts the chuck. In fact, Boszormenyi clearly teaches that the entire surface of a wafer is required to be cleaned. The Office is respectfully directed to column 2, lines 19-22 which states as follows:

Since the entire surface of every workpiece needs to be cleaned and not just samples the tool allows 100% inspection which would be cost prohibitive if the inspection was to carried out off-line. (Emphasis Added).

Therefore, Boszormenyi requires that the entire surface of wafer be cleaned. Consequently, Applicants respectfully submit that Boszormenyi does not disclose or suggest defining or cleaning of a portion of a wafer which contacts a chuck during a semiconductor fabrication processing.


In addition, claim 1, as amended, includes the feature of defining cleaning sites being portions of the backside of a wafer that physically contacts a chuck during a semiconductor processing operation, each one of the portions having particles with a size greater than about 150 nm. Applicants respectfully submit that none of the cited prior art references discusses

defining sites with particles with a size greater than 150 nm. Therefore, Applicants respectfully submit that this feature is not disclosed or suggested by the cited prior art references.

Consequently, Applicants respectfully submit that the Hiatt, Yin, and Boszormenyi references, individually or in combination, do not teach or suggest all of the features of the claimed inventions. In addition, for the reasons discussed above, Applicants respectfully submit that one skilled in the art would not be motivated to combine the cited prior art references as suggested by the Office. As a result, Applicants respectfully submit that Office has failed to raise a prima facie case of obviousness. Consequently, Applicants respectfully request that the section 103 rejections with respect to independent claims 1, 8, 15, 21, and 22 be withdrawn. In addition, the dependent claims are submitted to be allowable for at least the reasons discussed above for the independent claims.

In view of the foregoing, Applicants respectfully submit that the pending claims are in condition for allowance and therefore respectfully request a notice of allowance. Accordingly, a notice of allowance is respectfully requested. In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 774-6927. If any additional fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees to Deposit Account No. 50-0805 (Order No. LAM2P317). A copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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